



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,948	01/09/2006	Hans-Thomas Bolms	2003P07493WOUS	3584
22116	7590	12/10/2007	EXAMINER	
SIEMENS CORPORATION			VO, HAI	
INTELLECTUAL PROPERTY DEPARTMENT			ART UNIT	PAPER NUMBER
170 WOOD AVENUE, SOUTH				
ISELIN, NJ 08830			1794	
MAIL DATE		DELIVERY MODE		
12/10/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,948	<b>Applicant(s)</b> BOLMS ET AL.
	<b>Examiner</b> Hai Vo	<b>Art Unit</b> 1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

1) Responsive to communication(s) filed on 15 October 2007.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

4) Claim(s) 26,27,29-36,46 and 47 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 26,27,29-36,46 and 47 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/06)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

1. Rejections of claim 26 are withdrawn because none of the applied references teach or suggest the porous layer characterized by sizes of the pores decreasing as the layer extends toward the outer surface.

***Election/Restrictions***

2. The restriction requirements are considered moot in view of the cancellation of non-elected claims 37-45.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 46 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee et al (US 2003/0021905). Lee discloses a coating system comprising a metal substrate 2, a porous bond coat 14 on the substrate having a pore 6 defined by a wall and a ceramic coating 16 on an interior surface of the wall (column 2, lines 35-60, figure 1). The ceramic coating is zirconium dioxide

(paragraph 43). The porous bond coat is a MCrAl(X) (paragraph 41).

Accordingly, Lee anticipates the claimed subject matter.

6. The art rejections over Lee have been maintained for the following reasons. The examiner notes that claims 46 and 47 present subject matter of dependent claims 31 and 35 in independent form. Nothing has been discussed in the response to show that Applicants have disagreed with the Examiner on the rejections of claims 31 and 35 made in the 08/02/2007 Office Action.

Accordingly, the art rejections are thus sustained.

7. Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by Bamberg et al (US 5,721,057). Bamberg discloses a coating system comprising a metal substrate, a heat insulation layer with plurality of pores, and a zirconium dioxide coating on the inner surface of the pores (column 2, lines 52-60). Accordingly, Bamberg anticipates the claimed subject matter.

8. Applicants have not presented any arguments against the rejection of claim 31. Therefore, the rejection of claim 46 over Bamberg is thus sustained.

9. Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paul (US 7,070,853) in view of JP 2000-301655. Paul discloses a coating system comprising a substrate, a porous layer on the substrate having a pore defined by a wall and a ceramic coating on an interior surface of the wall (figures 9B, 10A and 10B). The substrate is of metal (column 2, lines 45-46). The porous layer has a foam-like structure (column 3, lines 35-40). An intermediate layer is interposed between the substrate and the porous layer (column 3, lines

5-10). Paul does not specifically disclose the ceramic coating comprising zirconia as well as a porous layer of MCrAIX. JP'655, however, teaches a thermal barrier coating comprising a porous undercoat of MCrAIX and a top coat of zirconia (abstract, paragraphs 17 and 18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a MCrAIX porous layer and a zirconia protective coating motivated by the desire to provide a coating system exhibiting excellent thermal resistance and durability and suitable for use in gas turbine engines.

10. The art rejections based on Paul have been maintained for the following reasons. Applicants contend that since JP'655 does not teach or suggest a porous layer or a coating on an interior surface of the pore, JP'655 is improperly combinable with Paul to achieve the claimed invention. The examiner respectfully disagrees. Paul discloses that the porous layer filled with the ceramic coating exhibiting good mechanical properties at elevated temperatures and serving as thermal barrier coating. JP'655 teaches a thermal barrier coating suitable for gas turbine engines is a combination of a porous undercoat of a MCrAIX and a topcoat of zirconia (paragraphs 17 and 18). Therefore, one skilled in the art would be motivated to use the porous layer formed from a MCrAIX and a ceramic coating of zirconia for providing a thermal barrier coating having excellent thermal resistance and durability.

***Double Patenting***

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to

prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 26, 27, 29, 30, 32-34, and 36 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 35-54 of copending Application No. 10/578,425. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '425 application fully encompass the claimed subject matter.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Claims 31, 35, 46 and 47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 35-54 of copending Application No. 10/578,425 in view of JP 2000-301655. The '425 application discloses each and every limitation of the claims except the zirconia

protective coating and the MCrAIX porous layer. JP'655, however, teaches a thermal barrier coating comprising a porous undercoat of MCrAIX and a top coat of zirconia (abstract, paragraphs 17 and 18). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form a MCrAIX porous layer and a zirconia protective coating motivated by the desire to provide a coating system exhibiting excellent thermal resistance and durability and suitable for use in gas turbine engines.

This is a provisional obviousness-type double patenting rejection.

***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HV

/Hai Vo/  
Primary Examiner, Art Unit 1794

Application/Control Number: 10/563,948  
Art Unit: 1794

Page 8